

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 404 843 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification: **28.12.94** (51) Int. Cl.⁵: **A47C 20/00**

(21) Application number: **89905937.2**

(22) Date of filing: **02.05.89**

(86) International application number:
PCT/US89/01873

(87) International publication number:
WO 89/10714 (16.11.89 89/27)

(54) **PILLOW.**

(30) Priority: **06.05.88 US 190847**

(43) Date of publication of application:
02.01.91 Bulletin 91/01

(45) Publication of the grant of the patent:
28.12.94 Bulletin 94/52

(84) Designated Contracting States:
AT BE CH DE FR GB IT LI LU NL SE

(56) References cited:

EP-A- 0 270 014	FR-A- 2 573 972
US-A- 2 305 956	US-A- 3 757 364
US-A- 4 070 719	US-A- 4 218 792
US-A- 4 259 757	US-A- 4 320 543
US-A- 4 432 107	US-A- 4 494 261
US-A- 4 748 702	US-A- 4 754 513

(73) Proprietor: **E.R. CARPENTER COMPANY, INC.**
5016 Monument Avenue
Richmond, VA 23230 (US)

(72) Inventor: **DIXON, Linda, H.**
P.O. Box 1382
Ross, CA 94957 (US)

(74) Representative: **Bayliss, Geoffrey Cyril et al**
BOULT, WADE & TENNANT
27 Fumival Street
London EC4A 1PQ (GB)

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid (Art. 99(1) European patent convention).

Description

This invention relates to a pillow suitable for the prevention and/or reduction of snoring. More particularly, this invention relates to a pillow which optimizes the user's breathing passageways by proper head, neck, shoulder and jaw positioning.

The problems associated with snoring have been with us since the beginning of time and yet little has been done to properly confront these problems. It is estimated that, in the United States alone, there exists about 10 million "heavy" snorers whose "log sawing" at night tends to cause irritation and long sleepless nights for those who are unlucky enough to be subjected to the snoring. In addition, snoring, especially heavy snoring, presents to the snorer potential health hazards as snoring decreases the amount of oxygen reaching the blood stream. Moreover, it is estimated that about 86% of the male population and 57% of the female population snore to some degree while sleeping; thus, it is evident that the problems associated with snoring affect virtually everyone in some way or another.

Social snoring is a term coined to define the situation where the one that is snoring is not alone. In such situations it is estimated that 15% of men and 52% of women are bothered to some extent by the snoring of another. Social problems are likely to arise in such an environment and it is well documented that snoring is one of the major causes for marital problems. In fact, as a well known advice columnist once stated, "love may be blind, but it is not deaf." A spouse or sleeping partner being subjected to another's snoring night after night loses sleep and inevitably becomes tired and irritable with the irritability being yet another factor which can create friction in a marital setting. A not unusual chain of events for a person placed in such a situation is to first attempt to solve the problem by poking or rolling the snoring partner. Attempts of this sort are usually ineffective and, if effective, only temporary in nature. Hence, the sleeping partner's next step is usually to refuse to sleep in the same room. Finally, in the more aggravated situations, the sleeping partner will refuse to sleep in the same house with divorce being one way of achieving such a goal.

Snoring is an indication that the breathing passageways of the individual snoring are partially blocked or reduced in area. The partial blockage of the breathing passageways during snoring means less oxygen is reaching the blood system and thus there is a greater chance that the individual will be subject to health problems such as heart attacks, strokes and hypertension, all of which are related to the amount of oxygen in the blood stream. Sleep Apnea, a severe snoring disorder where a victim

stops breathing completely many times a night, represents even a more severe health hazard which can lead to the above health problems as well as daytime drowsiness and even narcolepsy in the more severe cases.

The causes for snoring include, among other, tongue obstruction (hypopharynx); nasal obstruction (colds, broken nose, etc.); excessive soft palate tissue; pharyngeal narrowing or elasticity; the presence of enlarged tonsils and/or adenoids; and sleep posture.

As the problems associated with snoring are so acute, various articles have been placed on the market in an attempt to provide solutions. These articles have proven to both vary in price, comfort and effectiveness. For instance, articles placed on the market to confront the problems associated with snoring include: 1) indicators which indicate when the sleeper has moved to his back -- a position that leads to increased snoring; 2) tongue retaining devices; 3) elastic masks and splints to keep the mouth open; 4) various drugs which stimulate those portions of the body conducive to snoring; 5) expensive forced air machines; and 6) modified pillow shapes.

The foregoing articles known in the prior art have not proven entirely satisfactory to those suffering the plight of snoring. The inadequacies of the prior art result from, among other things, in their being either too expensive, too uncomfortable, ineffective or any combination of the same.

OBJECTS OF THE INVENTION

An object of the present invention is to provide a pillow which, inter alia, solves or at least reduces the aforementioned problems. That is, an object of the present invention is to provide an anti-snoring pillow which is effective in reducing or preventing snoring, and which is comfortable, yet inexpensive to manufacture. Also, by providing such a pillow, the present invention inherently achieves solutions to the previously discussed problems associated with "social snoring".

In achieving such objectives, the present invention utilizes a novel design which provides for optimal breathing passageways for the user while sleeping. The optimal breathing passageways are achieved by proper positioning of the user's head, neck, jaw and shoulders. Furthermore, optimization of the breathing passageways is achieved without reducing the comfort level of the user. Rather, the present invention provides a high degree of comfort for both back and side sleepers.

The amount of reduction in snoring depends, to a large extent, on which of the aforementioned factors are causing the snoring. It is clear, though, that by proper positioning of the head and the

maintaining of optimal breathing passageways, many of the factors leading to snoring can be reduced if not eliminated entirely.

Generally, those who are problem snorers are those who sleep on their back or on their side, with those sleeping on their back usually being somewhat noisier than those sleeping on their side. This observation is illustrative of the fact that the position of a person's breathing passageways is an important factor in whether and to what degree a person will snore. Therefore, sleep posture can be said to play a role in either aggravating or lessening the severity of snoring. The present invention is directed at providing a comfortable pillow and a pillow which will ensure optimal breathing passageways so as to reduce snoring for both those who sleep on their back and those who sleep on their side.

Basically, snoring can occur due to a partial obstruction at each or a combination of the following:

1) Nasal -- This is often due to nasal obstruction from polyps, a deviated septum, allergies or a common cold. These causes, for the most part, are only correctable by surgery or, as in the case of a cold, are temporary.

2) Nasopharynx -- Individuals having relatively large amounts of soft tissue (or more easily extendable soft tissue) at the back of their mouth where the "soft palate" or uvula meets the back of the throat (the area referred to as the nasopharynx) are likely to have snoring problems. This area, comprising the uvula and soft palate and pharyngeal folds, vibrates or flutters during breathing and can cause a sound loud enough to awaken even a sound sleeper.

3) Hypopharynx -- This third area of the airway is the area at the back of the mouth where the tongue meets the pharynx. In order to keep the tongue from falling backward and blocking the airway, it is helpful to thrust the jaw forward. Since the tongue is connected to the jaw, the thrusting forward of the jaw tends to keep the relaxed tongue from partially or completely blocking the back of the throat.

In addition, it has been determined that the position of one's jaw with respect to one's chest has an effect on the clearness of one's breathing passageways. When the jaw is placed close to one's chest or clavicle area, the breathing passageways become less clear. This position of the jaw leads to narrowing or constriction of the airway and an increase in snoring. Additionally, when the jaw is moved too far from one's chest (i.e., head tilted back to a great extent), the breathing passageways become less clear. This positioning of the head induces the hypopharynx to move to a partially blocked position and increases the chances of the

relaxed tongue curling back and creating blockage. A position of the head between these extremes has been found to lead to an optimization of a person's breathing passageways. More specifically the head should be positioned such that the neck is pushed outwardly and the head curled back a bit such that the bottom surface of the chin lies virtually in the same plane as the upper surface of the neck.

Moreover, a twisting of the head while the rest of the body remains stationary tends to create a narrowing or a reduction in the area of the breathing passageways. Thus a person lying on his back with his head twisted to one side will not have as clear passageways as one having his head untwisted. Also, a person lying on his side would have a reduction in the area of the breathing passageways when the head is twisted down towards the sleeping surface.

Accordingly, it can be seen that the position of a person's head while sleeping plays an important role in how clear the person's breathing passageways are. Furthermore, as there is a correlation between the clearness of one's breathing passageways and the presence of snoring, sleep posture can tend to aggravate or lessen the severity of snoring.

US-A-4259757 discloses a support cushion for medical use to support a patient's head and neck in convenient positions without patient damage. The cushion includes two portions made of polyurethane foam separately joined by hook and loop fasteners. The portion normally on top when the two are used together has hemispherical depression in the top, a groove extending outwardly from the depression, dihedral plane surfaces extending out from the groove and a rectangular bottom surface. The bottom portion has a rectangular top surface, a V-shape groove in the bottom and planar surfaces on either side of the V-groove lying in a plane which makes an acute angle of about 7° with the plane containing the top.

US-A-4754513 discloses a pillow case and insert for converting a conventional pillow into an orthopedic pillow comprising a pillow case having a pocket secured to the inside of the pillow case for receiving a soft, resilient elastomeric insert. A conventional pillow is inserted in the pillow case such that the pillow case insert and pillow support the neck and head of the user while lying on a side or in a supine position.

US-A-4320543 discloses pillows and methods of forming pillows with convoluted surfaces.

This invention provides a pillow having a base member with a front edge, a rear edge, a first side, a second side and a bottom and upper surface, and said pillow including an elongate bolster, said bolster being supported by said base member at a position closer to said front edge than to said rear

edge and having a profile as viewed in plan which essentially corresponds with the profile of said front edge, said bolster having a cross-section that is essentially semi-circular in shape and having a central region and two end regions with the height of the central region with respect to the bottom surface of the pillow being the same as the height of said end regions above the bottom surface of the pillow, wherein the rear edge of said base member is higher than the front edge such that the uppermost surface of said base member slopes downwardly from the rear edge of said pillow to the front edge of said pillow, said base member having a depression formed therein which is positioned in a central region of said base member and is defined by a boundary edge formed in said base member, said depression having a forward boundary section positioned just rearward of the central region of the bolster, said bolster having an uppermost surface which represents the upper surface of said pillow and said uppermost surface being higher than the entire boundary edge defining said depression, whereby said pillow functions as an anti-snoring pillow.

To accomplish proper sleeping position of the head, the present invention utilizes a pillow structure which places the head such that the bottom surface of the head is at or below the bottom surface of the neck. Also to obtain optimal breathing passageways the neck and head are placed in an extended or "sniffing" position where the breathing passageways are aligned and remain essentially optimally open whether the person is on his back or side. The pillow structure also acts to prevent twisting of the head when the person is lying on his back or side.

It is also contemplated that the arrangement includes a pair of lengthwise depressions with each of the pair originating at a respective side of the base member and each opening into the central depression. Preferably each of the lengthwise depressions is concave in shape and also positioned along the base member so as to open into the deepest portion of the central depression. A depth of about 2.54 to 7.62 cms (1 to 3 inches) has proven adequate for the purposes of the invention. The lengthwise depressions can also be semicircular in cross-section such that the depth of the depressions is equal to the radius of the depressions.

The convoluted surface extending from the base member is preferably in what is termed a "hill and valley" design. Moreover, the generally curved cross-sectional exterior surface of the bolster preferably is sculptured so as to have a scallop shape. The sculpturing of the exterior surface of the bolster leads to the formation of a plurality of ridges and grooves which extend along the length of the

bolster. These ridges and grooves assist in maintaining the person's head position by preventing undue movement. Moreover, the ridges and grooves lead to greater comfort as much of the weight of the head and neck is dispersed along the larger convoluted surface area at or behind the bolster rather than straight down. That is, by having the hills "squash" outwardly at their base the weight of the head is better distributed over the upper surface of the pillow and there is less of a localized vertical upward force acting against the head.

The specific shape of the bolster and the base member (with or without a convoluted laminate layer) acts to ensure proper positioning of the person's head while sleeping. The bolster's cross-sectional surface, which is generally curved in shape, is designed to nestle under and support a person's neck. The bolster also acts to provide some support to the lower part of the head of the user when the user is resting on his back. Further, the bolster's cross-sectional shape is designed such that a person resting on his side will have the side of his face in the region of the chin essentially lying on a plane which is parallel to the upper surface of the base member covered by the bolster. The user's head is also positioned such that a line, lying flush with the front edge of the base member and extending vertically upward, would extend tangentially off the bottom surface of the user's chin.

The bolster's longitudinal or lengthwise curvature together with the front edge of the base member provide a concavity which enables the shoulders of a user to be properly positioned relative to the pillow. This is true whether the user is sleeping on his back or on his side, since the curvature and length of the pillow are designed to accommodate the natural downward slope of both shoulders or just a single shoulder.

In an embodiment which includes a recess for the head in the upper surface of its base member, there is provided a region into which the major portion of the back of the head of the sleeping person is nestled when in the back sleeping position. Also, for the side sleeping position, the recess is positioned such that the wider portion of one's face is within the recess and the thinner jaw portion is lying on the bolster so as to maintain the jaw in a forward extended position.

The choice of material or materials being utilized to form the base member, bolster and convoluted upper surface is chosen so as to coordinate with the geometry of the pillow such that the optimal airway is achieved. That is, a person sleeping on his side has his head positioned such that a plane parallel to the surface supporting the pillow and body, approximately at the level of a person's

spinal cord, would virtually bisect the person's head. Also, the plane is positioned so as to approximately bisect the person's nose which would indicate that the head is not unduly twisted.

On the other hand, for a person lying on his back, the head is positioned such that a plane passing through the bottom surface of the chin and being substantially parallel to the neck's upper surface which is both extended along its length and forced upwardly away from the pillow supporting surface by the bolster, intersects the plane of the supporting surface of the pillow at an obtuse angle. In such a position, a second plane extending through the tip of the nose and being parallel to the aforementioned plane also traverses the plane including the support surface of the pillow at an angle which is obtuse with the supporting surface for the pillow. Moreover, the head is positioned such that at its lowest point it is about 5-20 cms above the pillow supporting surface or even more preferably about 8-10 cms above the pillow supporting surface. Also, the bottom surface of the center portion of the neck is generally about 2-5 cms higher from the supporting surface for the pillow than is the lowest point of the head.

The specific geometry of the present invention, as well as the coordinated use of the different materials used in making the pillow enables a person to sleep comfortably while experiencing a reduction in snoring.

Other advantages and improvements over the prior art will become more apparent from the description made hereinbelow with reference to the accompanying drawings in which:

FIG. 1 represents a perspective view of one embodiment of the pillow of the present invention.

FIG. 2 represents a cross-sectional view along the lines II-II of FIG. 1.

FIGS. 3A-3D represent perspective views of other embodiments of pillows of the present invention.

FIG. 4 represents a side view of one embodiment of the invention as well as the position of the head and neck of a user in a back sleeping position.

FIG. 5 represents a side view of the invention as well as the position of the head and neck of a user in a side sleeping position.

FIGS. 6A-6C represent various sleeping positions of a person's head.

FIG. 7 represents a side view of the rear edge of the pillow illustrated in FIG. 3D.

FIG. 8 represents a perspective view of another embodiment of the present invention.

DETAILED DESCRIPTION OF THE DRAWINGS

Figure 1 shows a perspective plan view of a preferred embodiment of the present invention. Figure 1 illustrates an anti-snoring pillow 10 having a bolster 12 secured to the upper surface of base member 14 along one edge of the latter. The bolster 12 has a generally curved outer surface 16 which has contoured therein a plurality of essentially parallel ribs or scallops (18, FIG. 2). Further, the bolster 12 is curved along its length such that its center portion 20 is disposed closer to the back edge 21 of the base member 14 than are the two ends 22 and 24 of the bolster. In addition, the bolster is shown to have essentially the same vertical thickness over its entire length. As seen in FIG. 2, the bolster 12 is hemispherical in cross-section and can be initially made with a substantially cylindrical configuration which, when cut into essentially two equal halves or hemispheres and subsequently trimmed to the proper dimensions, is securely affixed to the upper surface adjacent the front end of the base member 14.

FIG. 1 also reveals a convoluted surface 26 which is integrally attached to the base member 14 either by forming the convolutions directly in the base member or as a separate layer of convoluted material laminated onto the upper surface of the base member 14. When convoluted layer 26 is used, it is preferable to have the rear edge of bolster 12 vertical rather than curved so as to provide close contact with the forward edge of convoluted layer 26.

FIG. 2 illustrates a cross-sectional view along lines II-II in the embodiment of the pillow of FIG. 1. Bolster 12 is depicted as being a separate element as with respect to base member 14 and the convoluted layer 23, with all three components being adhesively or otherwise secured together, as is well known in the art. It is also contemplated that the bolster 12 and the base member 14 and the convoluted layer 32 can be formed as a unitary, integral body. As can be seen in FIG. 2, the upper surface 30 of the base member is inclined with its back edge 21 having a height "H" which is greater than the height "h" of front edge 28. In a preferred embodiment height "H" is about 1.2-5 times the height of "h". For instance, in one preferred embodiment, the height "H" is about 11.43cms (4.50inches) while the height "h" is about 8.25cms (3.25inches). In addition, the depth "D" of the pillow is about 40.64cms (16.0inches) while the width "W" (FIG.1) of the base member 14 is about 55.88cms (22.0 inches). These measurements as well as the amount of incline, if any, are variable, with the ultimate goal being the proper positioning of the user's head as will be explained more fully hereafter. A preferred range of incline from the

horizontal includes a range of 5° to 25°.

FIG. 2 also illustrates the convolute surface 26 being provided by securing a layer of convoluted material 32 onto the upper surface 30 of base member 14. Securement of the bolster can be achieved by attaching the bottom edge 34 of bolster 12 to the upper surface of base member 14. Securement of both the convoluted material 32 and the bolster can be achieved by utilizing an adhesive or any other conventional type of bonding means known in the art. Alternatively, it is possible, depending on the manufacturing technique, to form the bolster, base member and convoluted surface from a single piece of material.

The bolster 12 is preferably semi-circular in shape and is attached to the upper surface of the base member 14 as depicted in FIG. 2. Various other shapes could also be utilized provided the shape achieves a proper positioning of the head and a high degree of comfort. In a preferred embodiment, the radius of the semi-circular bolster ranges from about 3.81 to 10.16cms (1.5 to 4inches) and more preferably, the radius of the bolster is about 6.35cms (2.5inches). In addition, the longitudinal length of the bolster is preferably slightly longer than the front edge length of the base member 14. For instance, with a front edge of about 55.88cms (22inches), the curved bolster would preferably have a length of about 57.78cms (22.75inches). In a preferred embodiment the vertical thickness of the bolster is constant over its entire length. In another embodiment there is contemplated forming a slight dip in the bolster's vertical thickness near the center portion where the neck of the user will be supported.

In a preferred embodiment of the invention the bolster 12, the layer of convolute material 32 and base member 14 are all formed of a cellular polyurethane material. While the polyurethane can be the same for each component of the pillow, it is preferred that each component be made of a different cellular polyurethane. A densified polyurethane material sold under the trademark OMALUX, by E.R. Carpenter Company, Inc. has proven to be adequate for the purposes of the present invention especially with regard to the bolster material. It is also possible to form one or more components of the anti-snoring pillow of the invention of other material or combinations of other material such as, but not limited to, goose down, air or liquid filled compartments, natural or synthetic fibers including hollow fill tubed fibers, or the like.

The firmness of the material being used is also variable. Nonetheless, as will be explained more fully hereafter, it is important to maintain the firmness of each of the three components at a value which will achieve a head position that provides the user with optimal breathing passageways.

The weight of a human's head is said to generally range between 4.535 and 6.36Kg (ten and fourteen pounds). Consequently, it is important to provide the material with a firmness which is well suited for handling such a weight -- a feature which is lacking in many of the prior art pillows. Referring again to FIG. 2, a human head 36 is depicted in dot-dash lines. Again, as the weight of the head normally varies between ten to fourteen pounds, it is important to pick a material having an adequate firmness or ILD value. The ILD firmness value represents the amount of displacement one can expect in a material when a weight acts thereon to compress the material. For instance, an ILD value of 14 would mean that a weight of 6.35Kg (14 pounds) would displace a 10.16cm (four inch) thick piece of the material 2.54cms (one inch). Similarly, a 5.44kg (12 pounds) weight would displace a 10.16cms (four inch) thick piece of material having an ILD value of 12 by 2.54cms (one inch).

In a preferred embodiment, the ILD value for the anti-snoring pillow ranges between 6 to 25 and, more preferably, between 10 and 21. It has also been found an advantage to vary somewhat the firmness value for each of the component parts of the anti-snoring pillow (i.e., the bolster 12, base member 14 and/or convoluted material 32). Specifically, it has been determined advantageous for the purposes of the pillow of the invention to have the firmness value of the bolster 12 to be initially lower than the initial firmness value for the base member 14 and/or convoluted surface 32, such as, for example, an ILD value of 14 for the bolster, and an ILD value of 18 for the base member and an ILD value of 21 for the convoluted material for the first 25% of compression of the material.

Additionally, it has proven advantageous to form the bolster member of a cellular polyurethane foam having a higher density value than that of the base member. In such a case, if the bolster were to have an initial ILD value of about 11 and the base member an initial ILD value of 16, then it would be easier to compress the bolster member than the base member. However, upon further compression of the material the denser material becomes more difficult to compress than the less dense base member material. Therefore, in a region of greater than 25% compression the ILD values reverse and it becomes more and more difficult to compress the denser material. This feature provides added comfort in the neck of a user as it is the neck which is being extended or "stretched" upwardly away from the supporting surface of the pillow. Comfort is enhanced because the initially less firm bolster 12 provides a soft surface for the neck. However, firm support on the neck is also required to prevent straining of the neck in its extended position. This firm support is provided as the den-

ser bolster is compressed by the user.

FIG. 1, and more specifically FIG. 2, show a preferred embodiment of the invention having a depression 38 formed in the upper surface of base member 14. Depression 38 is generally shaped to conform to the back of the head of a user 36 once the head is placed within the depression. That is, the depression is formed such that the deepest portion of the depression supports the base of the head and the shallower edge portion 40 surrounding the forward part of depression 38 supports that area of the head 36 nearest the neck 42. In addition, the shallow portion 40 of the depression 38 is positioned just inwardly of the innermost edge of the bolster 12 such that there is maintained a smooth and comfortable transition from the bolster 12 to the base member 14. A depth which has proven adequate for the purposes of the invention is one which at its deepest point in base member 14 is between about 2.54cms to 10.16cms (1 and 4 inches) and more preferably about 6.60cms (2.6). The deepest portion of the depression 38 and the firmness and density of the material for the base member 14 and of the convoluted material 32 are such that the head of an average person [i.e. about 5.44kg (12 pounds)] would be positioned such that the lowermost portion of the head would be at a height L1 above the bottom edge 44 of the base member 14 (FIG. 2). Height L1 in base member 14 is preferably about 7.62 to 12.7cms (3 to 5 inches), and, more preferably, in the range of about 8.89 to 10.16cms (3.5 to 4 inches). The depression 38 is also of a depth sufficient to ensure that the lower part of the head supported therein is lower than the area of the neck which is supported by the bolster 12.

The depression 38 extends rearwardly into the back edge so as to form back depression 13 which is preferably shallower than the deepest portion of the central depression 38. Back depression 13 provides an alternate head resting position thus giving the pillow greater adaptability.

Referring once again to FIGS. 1 and 2, the scalloped or ribbed surface 18 of bolster 12 is provided with a plurality of ridges and grooves extending along the longitudinal length of the bolster. As illustrated in FIG. 5, the scalloped surface 18 of bolster 12 provides a means for helping to prevent the sliding of the face 45 of user 46 away from the bolster. This is achieved, in part, by having the soft portions of the user's face disposed somewhat superiorly to the grooves formed by scalloped surface 18 and the chin of the user's face resting on the edge of the bolster which is the edge closest to the head depression formed in the base member. In addition, like the convoluted surface, the scalloped surface provides a more comfortable surface for supporting the neck and a

portion of the face and further provides a surface which radiates the body heat more efficiently. The comfort of the surface of the bolster is attributable, in part, to its ability to disperse the weight of the head horizontally as well as vertically.

As illustrated in FIG. 1 and in FIGS. 3A-3D, the curved surface 48 of the pillow and the bolster comprises a central portion 20 and end portions 22 and 24 of the bolster and that portion of the base member disposed below it. The curved surface of the bolster 12 has a radius R which preferably is within the range of about 45.72 to 91.44cms (1.5 to 3 feet) and, more preferably, about 76.2cms (2.5 feet). The arc of curved surface 48 is small enough to avoid any undue abutment between a user's shoulders when in the back sleeping position (as depicted in FIGS. 2 and 4) and the bolster and the end of the pillow. The curved surface is of a shape which generally matches the contoured or inclined slope of a user's shoulders. This shaping of the front edge thus provides a slight abutment between the shoulders and the front edge which assists in preventing the pillow from becoming out of position with respect to a user, especially a back sleeper.

Furthermore, the curved surface 48 of the pillow and bolster 12 permits a user sleeping on his side (FIG. 5) to position the lower neck and shoulder within the central area of the arcuate end of the pillow in a manner which ensures added comfort as well as proper support for the head and neck. While it would be possible in certain situations to utilize a straight edge bolster, the preferred embodiments of the present invention utilize a curved bolster having the advantages noted above.

FIGS. 3A-3D illustrate different embodiments of pillows 50, 52, 54 and 55 which prevent or reduce snoring of a sleeping individual. Each pillow 50, 52, 54 and 55 is devoid of a convoluted material layer or surface as well as a scalloped bolster surface. Rather, pillows 50, 52, 54 and 55 comprise a base member 56 and an arcuate bolster 58 supported on the upper surface of the arcuate end of the base member. FIG. 3A illustrates an embodiment which does not have a depression area formed in the upper surface of base member 56 for receiving the head of the sleeper. FIG. 3B, on the other hand, illustrates a pillow which has a depression area 60 which includes a central depression 66 and shallower left and right side depressions 62 and 64. Central depression 62 is adapted to conform to the back of the user's head much like depression 38 of FIG. 2. Side depressions 62 and 64 share a boundary with central depression 62 and are adapted to conform to the side of a user's face when in a side sleeping position (FIG. 5) and yet provide proper positioning of the head.

FIG. 3C illustrates an embodiment where rather than having depressions being formed in the upper

surface of base member 56, a different type of material is utilized in forming a central region 67. The cut out portion of region 67 has a first material 68 and a second material 70 being used to form the central area. Depending on the type of materials being utilized to form the base member and the central area, it is possible to have a different firmness value for each of the materials. Preferably, the material 70 in central area 67 is a high quality cellular polyurethane material having a high density and being lower in initial firmness in order to position the head of the user in a manner which is optimal, as described above, and thus reduce, and even prevent, snoring by the user when asleep.

FIG. 3D illustrates still another embodiment of the pillow of the invention wherein the depression 57 formed in the central portion of the pillow extends to the rear edge 21. This extension of the depression results in the formation of a depression 53 as illustrated in FIGS. 3 and 7. The depression 53 provides an added advantage to the pillow of the present invention by making it further adjustable to a person's body shape and preferences. Thus the depression 53 at the back edge of the pillow, which is shallower than the central depression 57, as seen in FIG. 7, provides an optimal air passageway for the user. The depression 53 preferably narrows as it extends towards the rear edge of the pillow as shown in FIG. 3D. It is to be understood that the head supporting areas of the pillows illustrated in FIGS. 3B, 3C and 3D are depressions having the same characteristics and features as the depressions in the pillows illustrated in FIGS. 1, 2 and 5. Furthermore, it is also contemplated that a convoluted surface which follows the contours of the upper surface can be formed in or added to the upper surface of the base member.

As noted previously, it is important in achieving an effective anti-snoring pillow or a pillow which substantially reduces snoring, that the breathing passageways of a user be maintained as clear as possible. This is shown in FIG. 4 where a user 74 has his head 76, nose passageway 78, and mouth passageway 80 positioned on the pillow of the invention so as to minimize or prevent snoring when asleep. FIGS. 6A-6C illustrate various possible positions in which a user can have his head placed on a pillow. FIG. 6B schematically illustrates the extended or "sniffing" position in which the user has an optimal breathing passageway. As can be seen in FIG. 6B and FIG. 4, the tip of the nose 82 of the user as well as the chin 84 are positioned such that a plane 83 passing generally along the bottom surface of the chin and generally parallel to the extended neck of the individual intersects the plane of the surface of the bed supporting the bottom of the pillow at angle "a" from the horizontal and angle "a" is an obtuse angle. In other

words, the plane passing generally along the bottom surface of the chin would intersect the user in the general area of the chest at an obtuse angle.

It should be noted, though, that if the angle "a" becomes too large then partial blockage of the breathing passages begins to occur.

FIG. 6A illustrates, schematically, a head positioned in a manner whereby angle "a" is about 90°. This position of the head does not provide the clear breathing passageway as the position shown in FIG. 6B, and, accordingly partial blockage of the breathing passages begins to occur, causing the individual to snore when asleep.

FIG. 6C illustrates, schematically, the head tilted towards the chest of the user. Angle "a" thus becomes an acute angle. If angle "a" becomes too small, the head is placed in a position which again leads to partial blockage of the breathing passageways and to increased snoring by the sleeping individual.

The pillow of the present invention, as shown in FIG. 4, positions the head of a user in a back sleeping position in the extended position so that the breathing passageways are at an optimum open condition. It is further contemplated that a range of obtuse angles "a", as defined above would preferably vary from about 125 to 165° and even more preferably be in the order of about 155°.

FIG. 5 illustrates the pillow of the invention wherein the user 90 is in a side sleeping position with his head 46 nestled comfortably in pillow 10. As shown in dashed line the head 46 of the user is positioned at a height L2 from the bottom edge 92 of the pillow. Height L2 is contemplated to be within the same ranges as height L1 discussed with respect to the pillow shown in Fig. 2, namely, in a range of about 7.62 to 12.7cms (3 to 5 inches) and preferably, between 8.89 to 10.16cms (3.5 and 4 inches). Also height L2 will be less than the height from the bottom surface of the neck supported on the upper surface of the bolster to the bottom 92 of the pillow. Thus, if cellular polyurethane foams of different densities were used for both the base member 14 and the convoluted material layer 32, the firmness value would be such that the user's head 46 would act to compress the foam to the extent necessary to come within the preferred ranges of heights L1 and L2. For example, if a head of a person were to weigh 5.44Kg (12pounds) and the ILD value of the foam used was 12, then a 10.16cms (four inch) thick combination of base member and convoluted material in the area of head contact would compress essentially about an inch thus leaving the head about 7.62cms (3inches) from the bottom edge 92, which weight height is within the preferred range for L1 and L2.

FIG. 5 also illustrates a pillow providing a head position which improves the clearness of the breathing passageways of the person sleeping on his side. In this position, the spine 94 of the user, shown schematically, is essentially parallel to the bottom surface 92 of the pillow 10. Again, it is important to avoid twisting of the neck when attempting to provide optimal breathing passageways. The proper head position of FIG. 5 for a side sleeper is such that a plane P1 which is parallel to the bottom surface 92 would pass through some portion of the user's nose 96 and the spine 94. The bolster 12 is of a height and firmness which is suitable for keeping the head in the position shown in FIG. 5. This is achieved by providing support in the cheek and chin area of the user such that there is virtually no twisting of the spinal column 94, head and neck of the person while sleeping. In addition, the bolster 12 acts like a neck brace in keeping the chin up and away from the clavicle area of the user.

Preferably, the user's head is positioned such that plane P2 is lying flush with the chin area of the side of the user's face and is parallel with the inclined, upper surface of the base member. Also, the user's head is preferably positioned such that line L3, lying flush with the curving front edge of the base member and extending vertically upward, extends tangentially off the bottom surface of the user's chin.

The pillows of the present invention may be produced by various methods. For instance, the entire pillow 10 can be formed in a molding operation so as to be unitary and consisting essentially of the same material, such as a cellular polyurethane. Alternatively, an outer layer for the pillow could be manufactured, again by molding or the like, which, when filled with a fluid, either liquid or gaseous, would expand into the desired shape. In the preferred embodiment, the base member 14, convoluted material layer 32 and bolster 12 are separately formed of cellular polyurethane of different densities in individual molds. Thereafter, the bolster 12 is bonded by adhesive, heat or the like to the upper front edge area of the base member 14. Also, the convoluted material layer 32 of cellular polyurethane foam with the "hills and valleys" can be laminated to the rest of the upper surface of the base member 14.

If a depression for supporting the head of the sleeper is desired, such as in the preferred embodiment, it can be formed either directly by molding or indirectly by pressure cutting a depression out of the upper surface of the base member 14. The convoluted layer 32 of substantially uniform thickness is then adhesively secured to the upper surface of the base member 14 and such layer assumes the configuration of such upper surface,

including the depressed areas, such as the depression 38, to form the final pillow, as illustrated in FIGS. 1 and 2 of the drawing. Moreover, to achieve the longitudinal curve in the bolster, a moon shaped section is cut from the front edge of the base member 14 and the semi-circular or semi-hemispherical bolster 12 is adhesively adhered to the upper cutout surface of the base member 14, such that the outermost edge of the bolster coincides with the outermost front edge of the cut out base member. To complete the operation, the front edge corners of the base member would need to be cut off to conform with the bent ends of the bolster.

FIG. 8 reveals another embodiment of the invention which is similar to the embodiment illustrated in FIG. 1 but further includes a pair of lengthwise depressions 100,102 which originate at the sides of the base member 14 and open into central depression 38. The lengthwise depressions, in combination with the central depression, extend the entire length of base member 14 and thus form locations 104,106 into which the head of a user can be nestled.

Each lengthwise depression can have an equal depth and radius or, alternatively, one lengthwise depression can be deeper or wider than the other thereby providing the pillow with greater head size adaptability as well as greater pillow use adaptability. Suitable depths for the lengthwise depressions 100,102 have been found to be anywhere between about 2.54 to 7.62cms (1 to 3 inches). Insofar as the position of the lengthwise depressions on the front to rear extending incline, a suitable position has been one which has lengthwise depressions 100,102 opening into the deepest part of central depression 38. In addition, there lies the possibility of positioning one lengthwise depression higher upon the inclined upper surface of the base member than the other.

The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the scope of the invention, and all such modification as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.

Claims

1. A pillow having a base member (14) with a front edge (28), a rear edge (21), a first side, a second side and a bottom and upper surface, and said pillow (10) including an elongate bolster (12), said bolster being supported by said base member at a position closer to said front edge than to said rear edge and having a profile as viewed in plan which essentially cor-

- responds with the profile of said front edge, said bolster having a cross-section that is essentially semi-circular in shape (16) and having a central region (20) and two end regions (22, 24) with the height of the central region with respect to the bottom surface of the pillow being the same as the height of said end regions above the bottom surface of the pillow, characterised in that the rear edge of said base member is higher than the front edge such that the uppermost surface of said base member slopes downwardly from the rear edge of said pillow to the front edge of said pillow, said base member having a depression (38) formed therein which is positioned in a central region of said base member and is defined by a boundary edge formed in said base member, said depression having a forward boundary section (40) positioned just rearward of the central region of the bolster, said bolster having an uppermost surface (16) which represents the upper surface of said pillow and said uppermost surface being higher than the entire boundary edge defining said depression, whereby said pillow functions as an anti-snoring pillow.
2. A pillow as claimed in Claim 1, characterised in that said upper surface of said base member (14) slopes in a range from about 5 to 25°, said front edge (28) being curved along its length and said bolster (12) having a corresponding lengthwise curvature, and said bolster being supported by the sloping uppermost surface of said base member.
 3. A pillow as claimed in Claim 1 or 2, characterised in that said rear edge (21) of the base member (14) is about 1.2 to 5 times greater in height than said front edge (28).
 4. A pillow as claimed in any of Claims 1 to 3, characterised in that said depression (38) has a depth of 2.5 to 10 cms (1 to 4 inches).
 5. A pillow as claimed in any of Claim 1 to 4, characterised in that said bolster is semi-circular in cross-section providing a curved (16) and an uncurved face (34) and the uncurved face of the semi-circular bolster is in contact with the upper surface of said base member (14) and the radius of the semi-circular bolster is from 3.8 to 13 cms (1.5 to 5 inches).
 6. A pillow as claimed in any of Claims 1 to 5, characterised in that the radius of the lengthwise curve of said front edge (28) of the base member is in the range of about 0.5 to 1.0 metres (1.5 to 3 feet).
 7. A pillow as claimed in any one of Claims 1 to 6, characterised in that said bolster (12) is scalloped in cross-section (18) so as to have a plurality of ridges extending along the length of said bolster and grooved recesses between said plurality of ridges.
 8. A pillow as claimed in any one of Claims 1 to 7, characterised in that the upper surface of said base member (14), except for that portion covered by said bolster, is convoluted (26) so as to include a plurality of hills of foam material and valleys therebetween.
 9. A pillow as claimed in any one of Claims 1 to 8, characterised in that said pillow includes a layer (23) of convoluted material which is laminated to the upper surface.
 10. A pillow as claimed in any of Claims 1 to 9, characterised in that said pillow is formed of at least one type of polyurethane foam.
 11. A pillow as claimed in any of Claims 1 to 10, characterised in that said base member (14) is comprised of a material having an initial firmness value greater than said bolster and said bolster (12) is formed of a material of a higher density than said base member.
 12. A pillow as claimed in any of Claim 1 to 3 or 4 to 11, when appendent to Claims 1 to 3, characterised in that the depression (57) is formed in the upper surface of said base member (14) and extends (53) to the rear edge (21) of the base member thereby forming a neck slot in said rear edge.
 13. A pillow as claimed in any of Claims 4 to 12, characterised in that a first side recess (100) extends from said depression (38) to one side of said pillow and a second side recess (102) extends from said depression to the opposite side of the said pillow.
 14. A pillow as claimed in Claim 1 to 13, characterised in that said bolster (12) and base member (14) are formed as an integral unit and of a common material.
 15. A pillow (10) having a base member (14) with a front edge (28), a rear edge (21), a first side, a second side and a bottom and upper surface, and said pillow including an elongated bolster (12) having a cross-section which is curved and said bolster having a lengthwise profile as

viewed in plan which essentially corresponds with the lengthwise profile of said front edge, said bolster having a longitudinal length formed of a mid-region and two end regions the combination of which extends essentially from the first side to the second side of said base member, and said bolster having the same vertical height along the entire length of said bolster such that the mid-region of said bolster is at the same vertical height as the adjacent end regions, characterised in that the rear edge of said base member is higher than the front edge such that the uppermost surface of said base member slopes downwardly from the rear edge of the pillow to the front edge of the pillow at an angle from 5 to 25° to the horizontal, and said base member has a depression (38) formed therein which originates at a central region of said base member and is about 2.5 to 10 cms (1 to 4 inches) deep, said depression being defined by a boundary edge in said base member, said bolster having a planar bottom surface (34) secured to a portion of the sloping uppermost surface of said base member at a location between the front edge of said base member and the central depression formed in said base member, said bolster extending off of said base member for about 3.8 to 13 cms (1.5 to 5 inches) with the planar bottom surface of said bolster being at an incline equal to that of the uppermost surface of said base member, said pillow being dimensioned and arranged such that the uppermost portion of said bolster, when in a non-compressed state, is higher in level than the uppermost portion of said bordering edge defining said central depression, such that said bolster in combination with said base member functions as an anti-snoring pillow.

16. A pillow as recited in Claim 15, characterised in that said pillow is dimensioned such that the uppermost portion of said bolster (12) is at a level which is higher than the uppermost level of the rear edge (21) of said base member (14).
17. A pillow as recited in Claim 15, characterised in that said bolster and base member are formed of two different polyurethane foam materials and the front edge and bolster curve along their length with the forwardmost portion of said bolster being commensurate with the front edge.
18. A pillow as recited in Claim 15 further comprising an upper layer (32) formed of foam hills separated by valleys, said upper layer (32)

being applied to all of said base member except for a portion of the base covered by said bolster.

5 Patentansprüche

1. Kissen mit einem Unterteil (14), das einen vorderen Rand (28), einen hinteren Rand (21), eine erste Seite, eine zweite Seite und eine untere und obere Fläche hat, sowie mit einer länglichen Aufpolsterung (12), die näher zum vorderen als zum hinteren Rand auf dem Unterteil aufliegt, in Draufsicht ein Profil hat, das im wesentlichen mit dem Profil des vorderen Rands übereinstimmt, einen im wesentlichen halbkreisförmigen Querschnitt sowie einen mittleren Bereich (20) und zwei Endbereiche (22, 24) hat, wobei die Höhe des mittleren Bereichs mit Bezug auf die untere Fläche des Kissens ebenso groß ist wie die Höhe der Endbereiche über der unteren Fläche des Kissens, **dadurch gekennzeichnet**, daß der hintere Rand des Unterteils höher ist als der vordere Rand, so daß die oberste Fläche des Unterteils vom hinteren Rand des Kissens zu seinem vorderen Rand hin abwärts geneigt ist, das Unterteil in seinem mittleren Bereich mit einer Vertiefung (38) ausgebildet ist, die durch eine am Unterteil angeformte Begrenzungskante begrenzt ist und einen direkt hinter dem mittleren Bereich der Aufpolsterung liegenden vorderen Grenzbereich (40) hat, wobei die oberste Fläche (16) der Aufpolsterung die obere Fläche des Kissens darstellt und höher ist als die gesamte die Vertiefung begrenzende Kante, wodurch das Kissen als Anti-Schnarch-Kissen funktioniert.
2. Kissen nach Anspruch 1, **dadurch gekennzeichnet**, daß die obere Fläche des Unterteils (14) eine Neigung in einem Bereich von ungefähr 5 - 25° hat, der vordere Rand (28) entlang seiner Länge gekrümmt ist und auch die Aufpolsterung (12) eine entsprechende Krümmung über die Länge hat, und daß die Aufpolsterung auf der geneigten obersten Fläche des Unterteils aufliegt.
3. Kissen nach Anspruch 1 oder 2, **dadurch gekennzeichnet**, daß der hintere Rand (21) des Unterteils (14) eine ungefähr 1,2 - 5 mal größere Höhe hat als der vordere Rand (28).
4. Kissen nach einem der Ansprüche 1 - 3, **dadurch gekennzeichnet**, daß die Vertiefung (38) eine Tiefe von 2,5 - 10 cm (1 - 4 Zoll) hat.

5. Kissen nach einem der Ansprüche 1 - 4, **dadurch gekennzeichnet**, daß die Aufpolsterung im Querschnitt halbkreisförmig ist und eine gekrümmte Fläche (16) sowie eine ungekrümmte Fläche (34) hat, welche an der oberen Fläche des Unterteils (14) anliegt, und daß der Radius der halbkreisförmigen Aufpolsterung 3,8 - 13 cm (1,5 - 5 Zoll) beträgt. 5
6. Kissen nach einem der Ansprüche 1 - 5, **dadurch gekennzeichnet**, daß der Radius der Längskurve des vorderen Rands (28) des Unterteils im Bereich von etwa 0,5 - 1,0 m (1,5 - 3 Fuß) liegt. 10
7. Kissen nach einem der Ansprüche 1 - 6, **dadurch gekennzeichnet**, daß die Aufpolsterung (12) im Querschnitt (18) gekerbt ist, so daß sie eine Vielzahl von sich über ihre Länge erstreckenden Rippen und jeweils zwischen diesen liegende Rücksprünge aufweist. 15
8. Kissen nach einem der Ansprüche 1 - 7, **dadurch gekennzeichnet**, daß die obere Fläche des Unterteils (14), mit Ausnahme des von der Aufpolsterung bedeckten Bereichs, genoppt ist, so daß sie eine Vielzahl von Hügeln aus geschäumtem Material und dazwischenliegenden Tälern aufweist. 20
9. Kissen nach einem der Ansprüche 1 - 8, **dadurch gekennzeichnet**, daß es eine Lage eines genoppten Materials aufweist, welches auf die obere Fläche aufgebracht ist. 25
10. Kissen nach einem der Ansprüche 1 - 9, **dadurch gekennzeichnet**, daß es aus wenigstens einem Typ eines Polyurethanschaums geformt ist. 30
11. Kissen nach einem der Ansprüche 1 - 10, **dadurch gekennzeichnet**, daß das Unterteil (14) aus einem Material besteht, das einen größeren anfänglichen Festigkeitswert hat als bei der Aufpolsterung (12) und deren Material eine höhere Dichte als das Unterteil hat. 35
12. Kissen nach einem der Ansprüche 1 - 3 oder 4 - 11, sofern auf die Ansprüche 1 - 3 zurückbezogen, **dadurch gekennzeichnet**, daß die Vertiefung (57) in der oberen Fläche des Unterteils (14) ausgebildet ist und sich bis zum hinteren Rand (21) des Unterteils erstreckt, so daß sie darin einen Nackenschlitz bildet. 40
13. Kissen nach einem der Ansprüche 4 - 12, **dadurch gekennzeichnet**, daß sich eine erste seitliche Ausnehmung (100) von der Vertiefung (38) zu der einen Seite des Kissens und eine zweite seitliche Ausnehmung (102) von der Vertiefung zur gegenüberliegenden Seite des Kissens erstreckt. 45

14. Kissen nach einem der Ansprüche 1 - 13, **dadurch gekennzeichnet**, daß die Aufpolsterung (12) und das Unterteil (14) als eine einstückige Einheit aus einem gemeinsamen Material geformt sind. 50
15. Kissen (10) mit einem Unterteil (14), das einen vorderen Rand (28), einen hinteren Rand (21), eine erste Seite, eine zweite Seite und eine untere und obere Fläche hat, sowie mit einer länglichen Aufpolsterung (12) mit einem gekrümmten Querschnitt, einem in Draufsicht längsgerichteten Profil, das im wesentlichen mit dem längsgerichteten Profil des vorderen Rands übereinstimmt, einer in Längsrichtung gemessenen Länge, die sich zusammensetzt aus einem mittleren Bereich und zwei Endbereichen, die sich zusammen im wesentlichen von der ersten Seite zur zweiten Seite des Unterteils erstrecken, und mit einer über ihre gesamte Länge gleichen senkrechten Höhe, so daß ihr mittlerer Bereich auf derselben senkrechten Höhe liegt wie die angrenzenden Endbereiche, **dadurch gekennzeichnet**, daß der hintere Rand des Unterteils höher ist als der vordere Rand, so daß die oberste Fläche des Unterteils vom hinteren Rand des Kissens zu seinem vorderen Rand hin unter einem Winkel von 5 - 25° zur Horizontalen abwärts geneigt ist, das Unterteil mit einer darin ausgebildeten Vertiefung (38) versehen ist, die in einem mittleren Bereich des Unterteils entspringt, ungefähr 2,5 - 10 cm (1 - 4 ") tief ist und durch eine Begrenzungskante am Unterteil begrenzt ist, wobei die Aufpolsterung eine ebene untere Fläche (34) hat, welche auf einem Teil der geneigten obersten Fläche des Unterteils an einer Stelle zwischen dem vorderen Rand des Unterteils und der darin ausgebildeten Vertiefung befestigt ist, die Aufpolsterung ungefähr 3,8 - 13 cm (1,5 - 5 Zoll) vom Unterteil absteht, während ihre ebene untere Fläche ebenso geneigt ist wie die oberste Fläche des Unterteils, das Kissen so bemessen und angelegt ist, daß der oberste Bereich der Aufpolsterung im nicht-zusammengedrückten Zustand auf einem höheren Niveau liegt als der oberste Bereich der die mittlere Vertiefung begrenzenden Begrenzungskante, so daß die Aufpolsterung in Kombination mit dem Unterteil als ein Anti-Schnarch-Kissen funktioniert. 55

16. Kissen nach Anspruch 15, **dadurch gekennzeichnet**, daß es so bemessen ist, daß der oberste Bereich der Aufpolsterung (12) auf einem Niveau liegt, das höher ist als das oberste Niveau des hinteren Rands (21) des Unterteils (14).

17. Kissen nach Anspruch 15, **dadurch gekennzeichnet**, daß die Aufpolsterung und das Unterteil aus zwei verschiedenen Polyurethanschaum-Materialien bestehen und der vordere Rand sowie die Aufpolsterung entlang ihrer Längserstreckung gekrümmt sind, wobei der vorderste Bereich der Aufpolsterung mit dem vorderen Rand übereinstimmt.

18. Kissen nach Anspruch 15, **gekennzeichnet durch** eine obere Lage (32), die aus durch Täler getrennten, geschäumten Hügeln gebildet ist und auf das gesamte Unterteil, ausgenommen den von der Aufpolsterung bedeckten Teil, aufgebracht ist.

Revendications

1. Oreiller comportant un organe de base (14) qui a un bord avant (28), un bord arrière (21), un premier côté, un second côté et des surfaces inférieure et supérieure, l'oreiller (10) avant un coussin allongé (12), le coussin étant supporté par l'organe de base en position plus proche du bord avant que du bord arrière et ayant un profil en plan qui correspond essentiellement au profil du bord avant, le coussin ayant une forme pratiquement en demi-cercle (16) et ayant une région centrale (20) et deux régions d'extrémité (22, 24), la hauteur de la région centrale par rapport à la surface inférieure de l'oreiller étant la même que la hauteur des régions d'extrémité au-delà de la surface inférieure de l'oreiller, caractérisé en ce que le bord arrière de l'organe de base est plus haut que le bord avant si bien que la surface supérieure de l'organe de base est inclinée vers le bas du bord arrière de l'oreiller vers le bord avant de l'oreiller, l'organe de base ayant un évidement (38) formé à l'intérieur et placé dans une région centrale de l'organe de base et délimité par un bord de limite formé dans l'organe de base, l'évidement ayant un tronçon limite avant (40) placé juste en arrière de la région centrale du coussin, le coussin ayant une surface supérieure (16) qui représente la surface supérieure de l'oreiller et la surface supérieure est au-dessus de tout le bord limite délimitant l'évidement, si bien que l'oreiller a une fonction d'oreiller contre le ronflement.

2. Oreiller selon la revendication 1, caractérisé en ce que la surface supérieure de l'organe de base (14) est inclinée d'un angle compris entre environ 5 et 25°, le bord avant (28) étant courbé sur sa longueur et le coussin (12) ayant une courbure correspondante suivant sa longueur, le coussin étant supporté par la surface supérieure inclinée de l'organe de base.

3. Oreiller selon la revendication 1 ou 2, caractérisé en ce que le bord arrière (21) de l'organe de base (14) a une hauteur supérieure de 1,2 à 5 fois à celle du bord avant (28).

4. Oreiller selon l'une des revendications 1 à 3, caractérisé en ce que l'évidement (38) a une profondeur de 2,5 à 10 cm (1 à 4 pouces).

5. Oreiller selon l'une des revendications 1 à 4, caractérisé en ce que le coussin a une section en demi-cercle formant une face courbe (16) et une face non courbe (34), et la face non courbe du coussin en demi-cercle est au contact de la surface supérieure de l'organe de base (14) et le rayon du coussin en demi-cercle est compris entre 3,8 et 13 cm (1,5 et 5 pouces).

6. Oreiller selon l'une des revendications 1 à 5, caractérisé en ce que le rayon de la courbe longitudinale du bord avant (28) de l'organe de base est compris entre environ 0,5 et 1,0 m (1,5 à 3 pieds).

7. Oreiller selon l'une des revendications 1 à 6, caractérisé en ce que le coussin (12) a une forme festonnée en coupe (18) afin qu'il possède plusieurs nervures placées sur la longueur du coussin et des cavités de gorge entre les nervures.

8. Oreiller selon l'une des revendications 1 à 7, caractérisé en ce que la surface supérieure de l'organe de base (14), sauf la partie recouverte par le coussin, a des circonvolutions (26) afin qu'elle comprenne plusieurs arêtes de matière formée de mousse et des cavités entre les arêtes.

9. Oreiller selon l'une des revendications 1 à 8, caractérisé en ce que l'oreiller comporte une couche (23) d'une matière ayant des circonvolutions, collée à la surface supérieure.

10. Oreiller selon l'une des revendications 1 à 9, caractérisé en ce que l'oreiller est formé d'un type au moins de mousse de polyuréthane.

11. Oreiller selon l'une des revendications 1 à 10, caractérisé en ce que l'organe de base (14) est formé d'un matériau ayant une valeur initiale de fermeté supérieure à celle du coussin, et le coussin (12) est formé d'un matériau ayant une masse volumique supérieure à celle de l'organe de base. 5
12. Oreiller selon l'une des revendications 1 à 3 ou 4 à 11 lorsqu'elle dépend des revendications 1 à 3, caractérisé en ce que l'évidement (57) est formé à la surface supérieure de l'organe de base (14) et s'étend (53) jusqu'au bord arrière (21) de l'organe de base en formant une fente pour le cou au bord arrière. 10 15
13. Oreiller selon l'une des revendications 4 à 12, caractérisé en ce qu'une première cavité latérale (100) part de l'évidement (38) vers un premier côté de l'oreiller et une seconde cavité latérale (102) part de l'évidement vers l'autre côté de l'oreiller. 20
14. Oreiller selon les revendications 1 à 13, caractérisé en ce que le coussin (12) et l'organe de base (14) sont formés en une seule pièce et d'une même matière. 25
15. Oreiller (10) comprenant un organe de base (14) ayant un bord avant (28), un bord arrière (21), un premier côté, un second côté et des surfaces inférieure et supérieure, l'oreiller comprenant un coussin allongé (12) ayant une section courbe, le coussin ayant un profil longitudinal, en vue en plan, qui correspond essentiellement au profil longitudinal du bord avant, le coussin ayant une longueur longitudinale formée d'une région médiane et de deux régions d'extrémité dont la combinaison est disposée pratiquement du premier côté au second côté de l'organe de base, le coussin ayant la même hauteur verticale sur toute sa longueur afin que la région médiane du coussin se trouve à la même hauteur verticale que les régions adjacentes d'extrémité, caractérisé en ce que le bord arrière de l'organe de base est supérieur au bord avant afin que la surface supérieure de l'organe de base soit inclinée vers le bas depuis le bord arrière du coussin vers le bord avant du coussin avec une inclinaison comprise entre 5 et 25° par rapport au plan horizontal, et l'organe de base a un évidement (38) formé à l'intérieur et qui commence dans une région centrale de l'organe de base et à une profondeur comprise entre environ 2,5 et 10 cm (1 à 4 pouces), l'évidement étant délimité par un bord de limite de l'organe de base, le coussin ayant une surface inférieure 30 35 40 45 50 55
- plane (34) fixée à une partie de la surface supérieure inclinée de l'organe de base à un emplacement compris entre le bord avant de l'organe de base et l'évidement central formé dans l'organe de base, le coussin partant de l'organe de base sur une distance d'environ 3,8 à 13 cm (1,5 à 5 pouces), la surface inférieure plane du coussin ayant une inclinaison égale à celle de la surface supérieure de l'organe de base, l'oreiller ayant une dimension et une disposition telles que la partie supérieure du coussin, lorsqu'il est à l'état non comprimé, est supérieure au niveau de la partie supérieure du bord délimitant l'évidement central, si bien que le coussin, en combinaison avec l'organe de base, joue le rôle d'un oreiller contre le ronflement.
16. Oreiller selon la revendication 15, caractérisé en ce que l'oreiller a des dimensions telles que la partie supérieure du coussin (12) est à un niveau supérieur au niveau supérieur du bord arrière (21) de l'organe de base (14).
17. Oreiller selon la revendication 15, caractérisé en ce que le coussin et l'organe de base sont formés de deux matières différentes de mousse de polyuréthane et le bord avant et le coussin se recourbent sur leur longueur, la partie la plus en avant du coussin ayant une dimension correspondant à celle du bord avant.
18. Oreiller selon la revendication 15, comprenant en outre une couche supérieure (32) formée d'arêtes de mousse séparées par des creux, la couche supérieure (32) étant appliquée sur tout l'organe de base sauf dans une partie de la base qui est recouverte par le coussin.

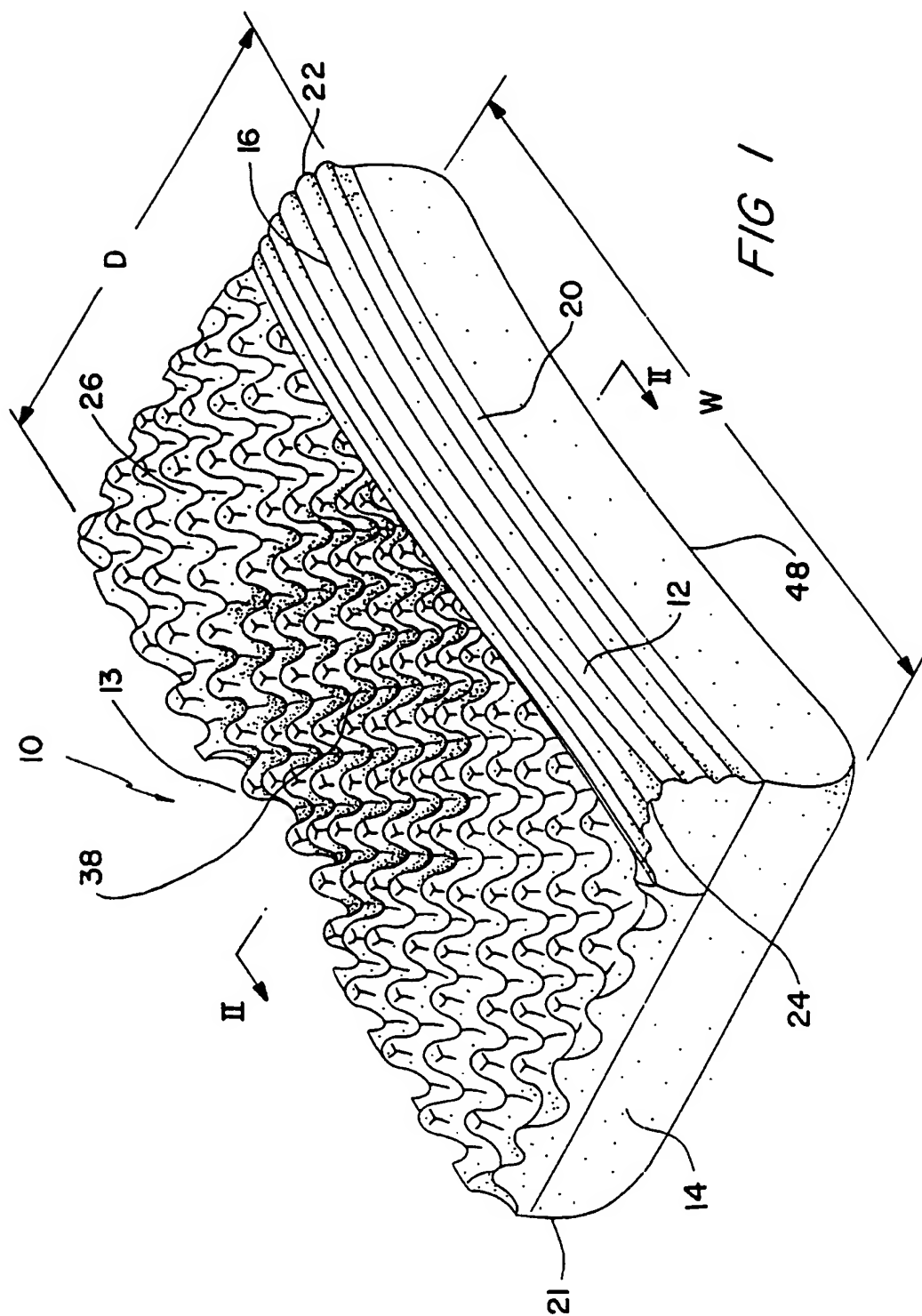
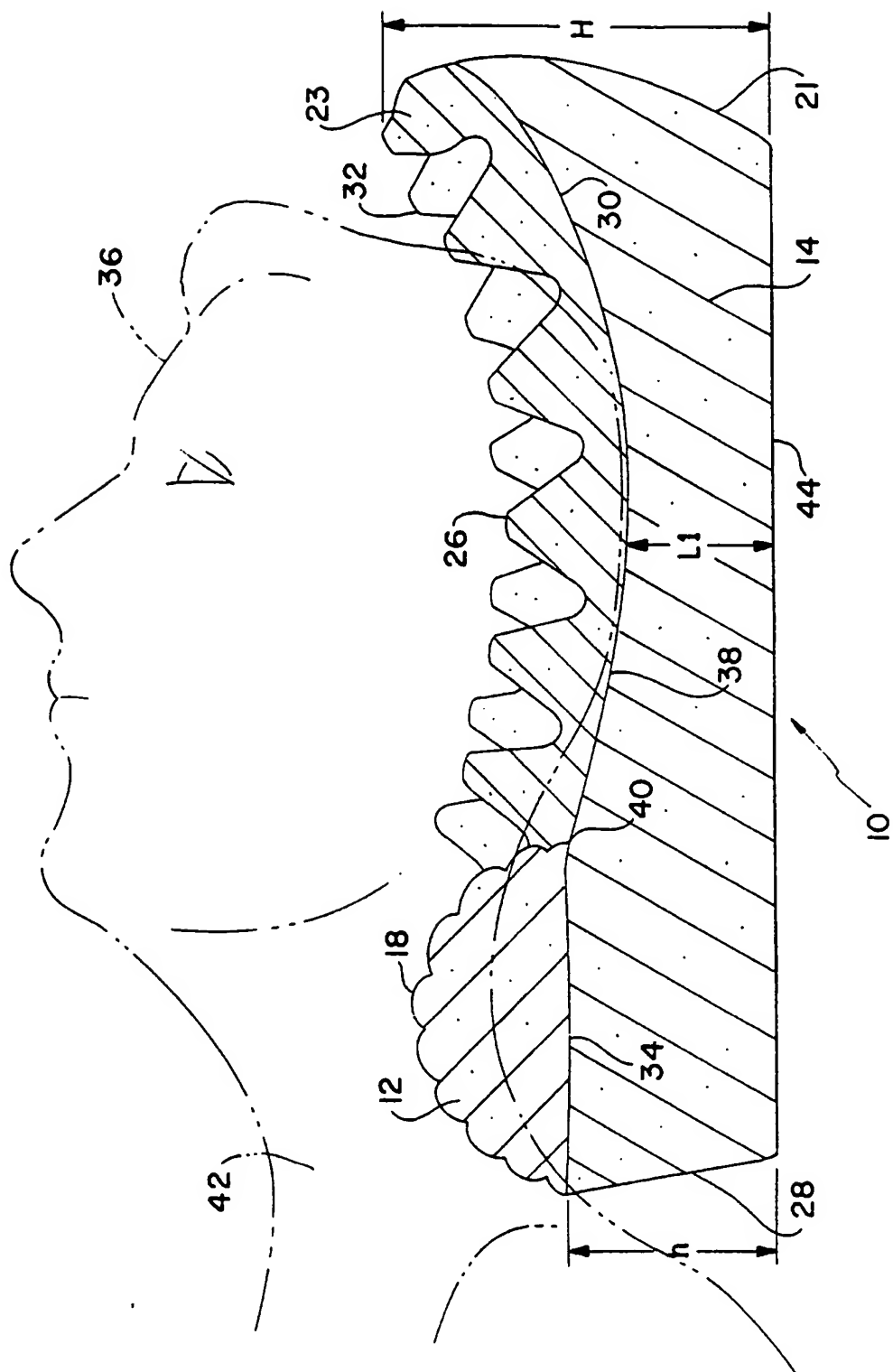


FIG. 2



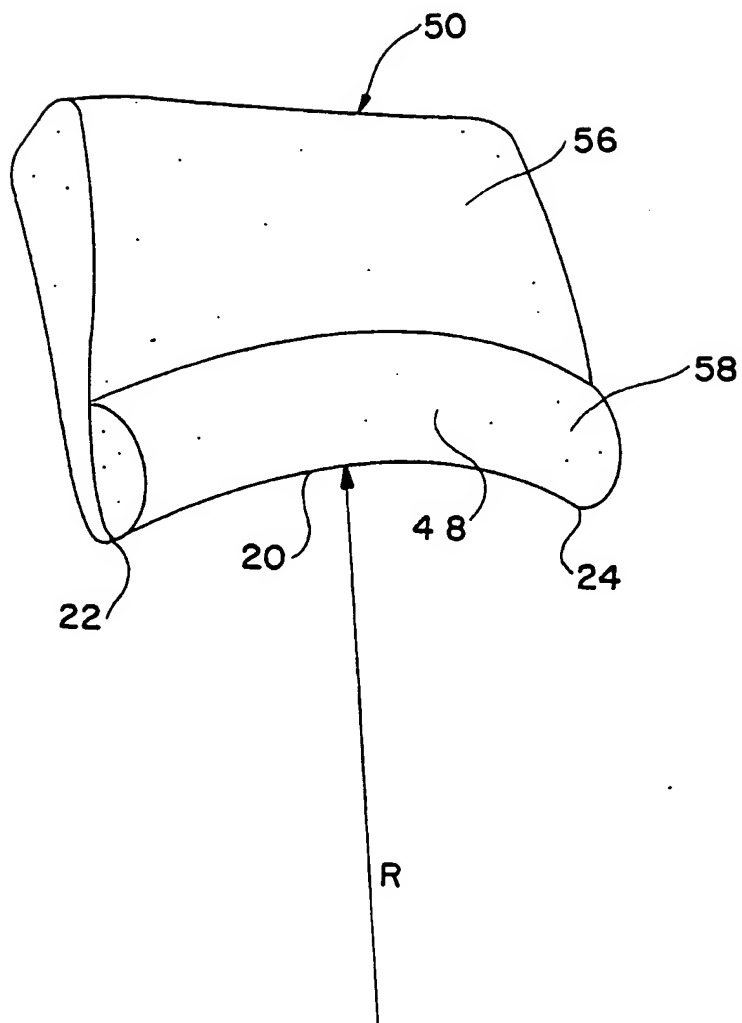


FIG. 3A

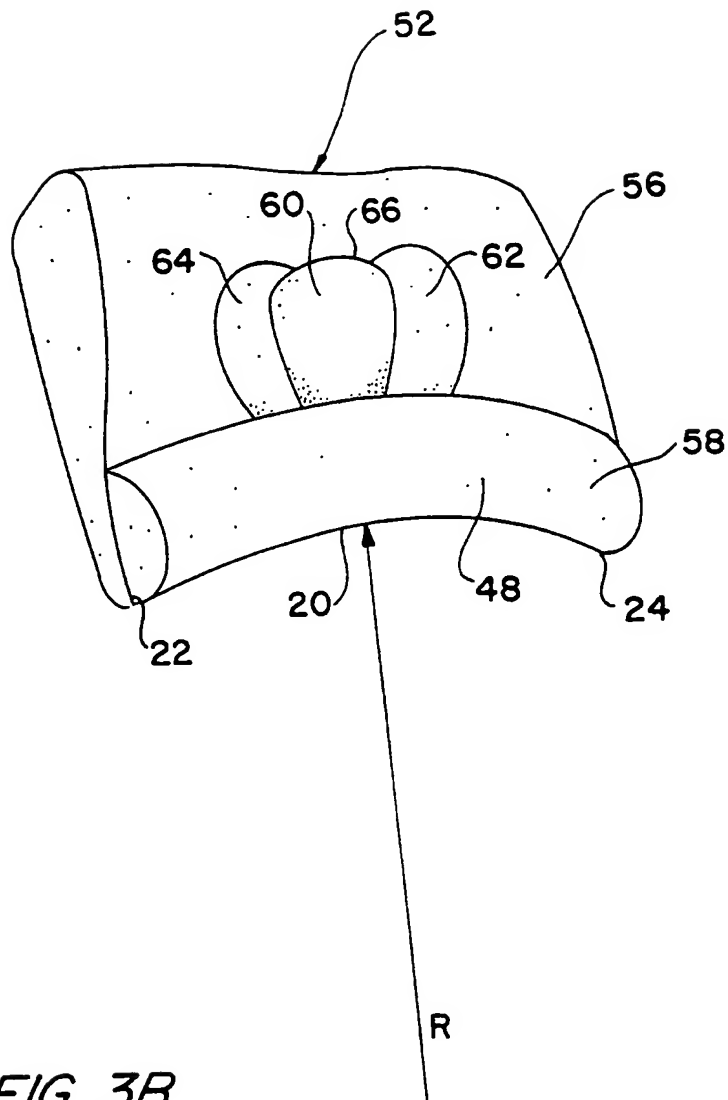
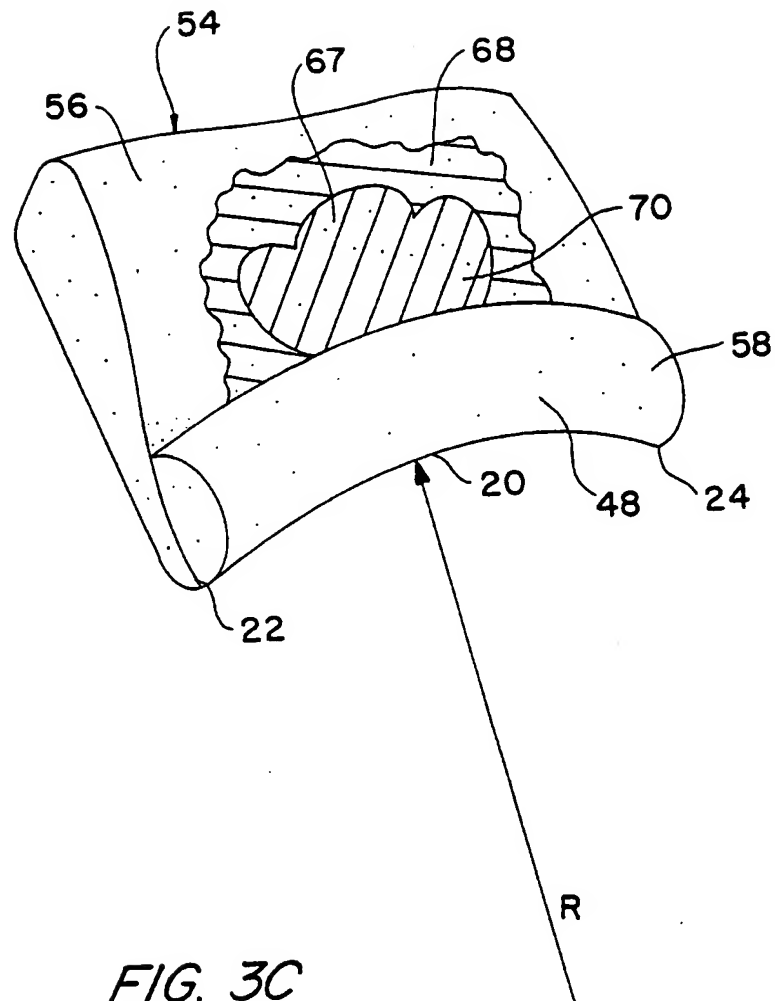


FIG. 3B



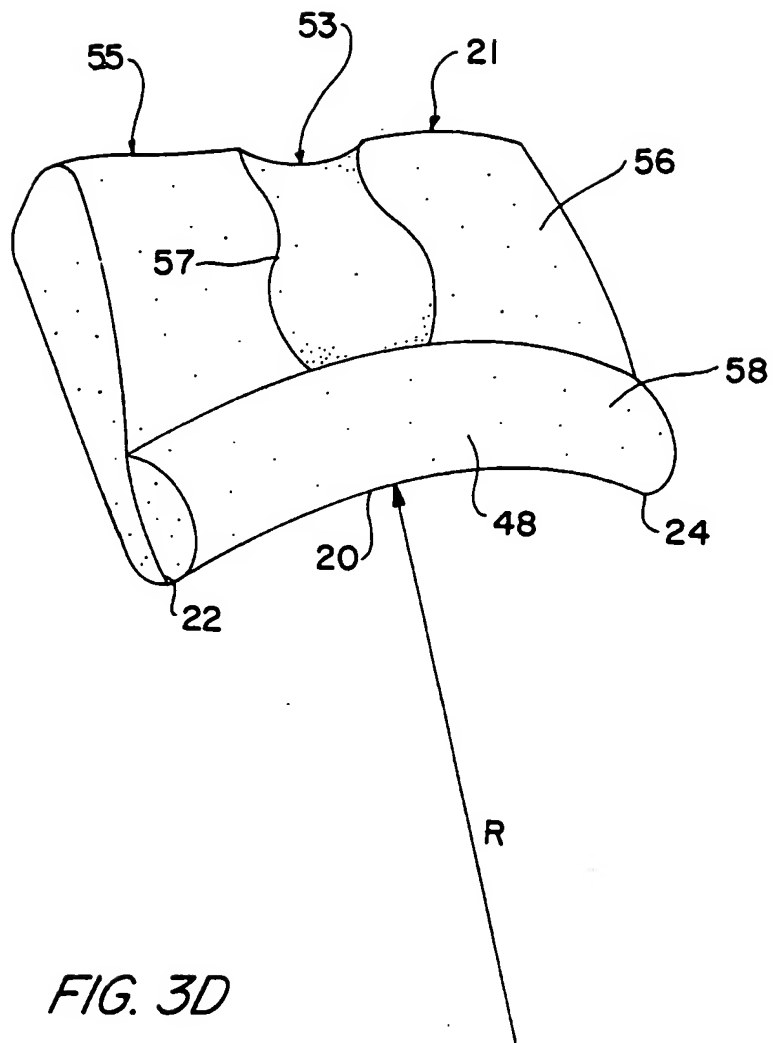


FIG. 3D

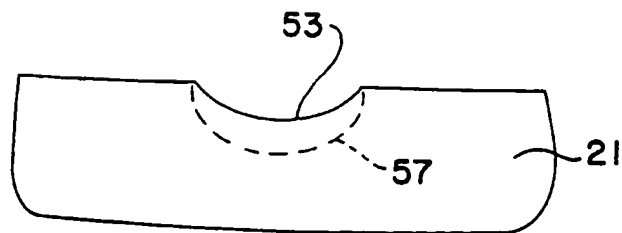
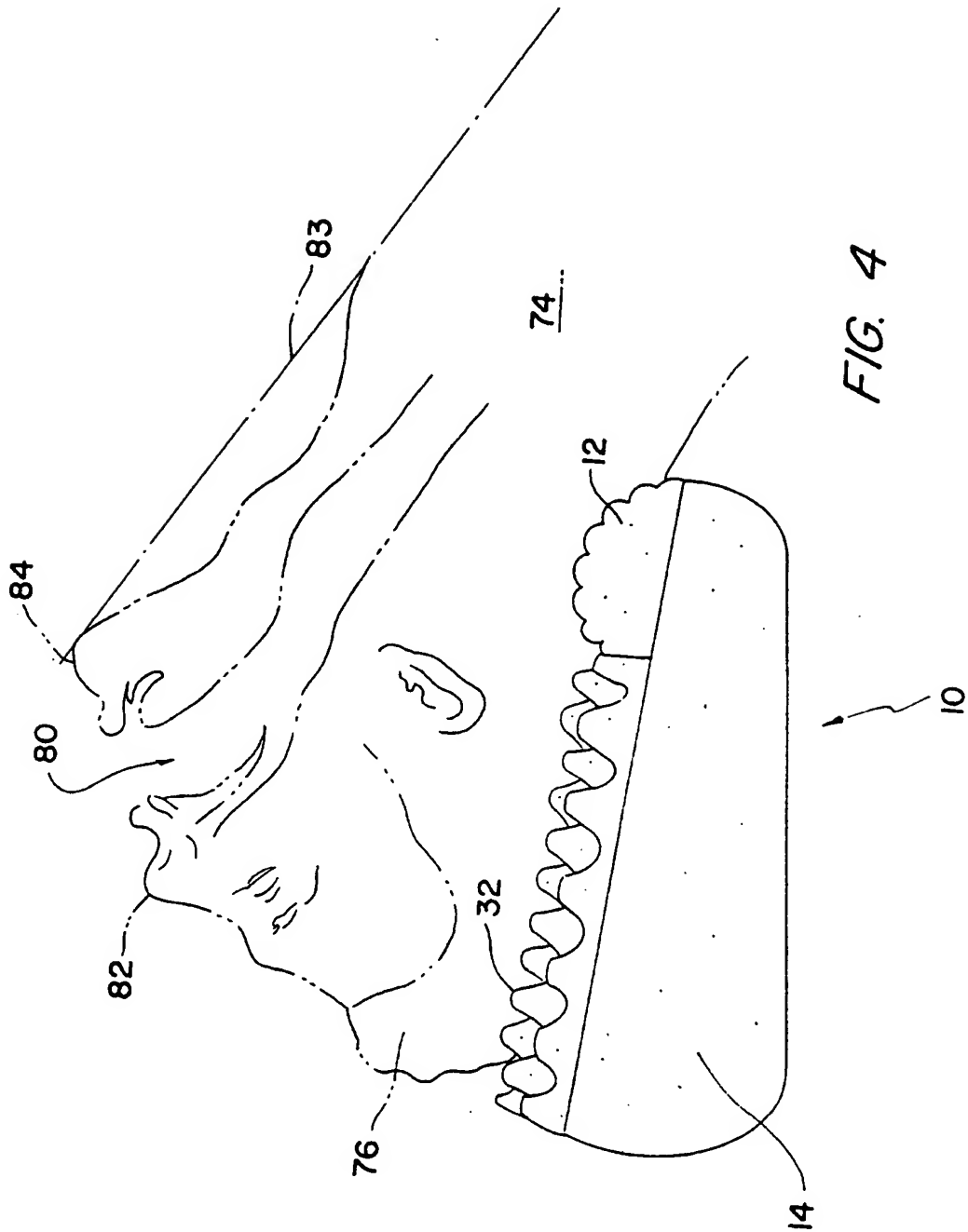


FIG. 7



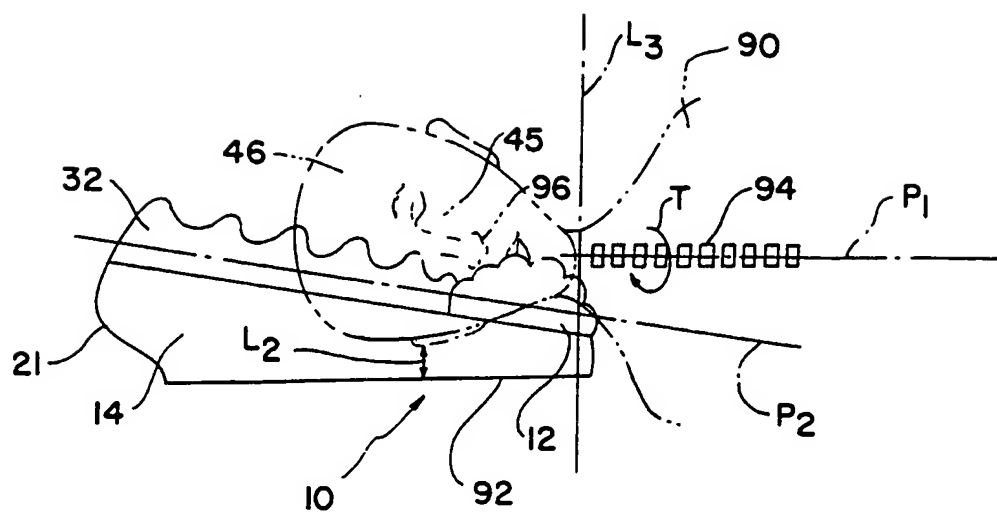


FIG. 5

